REMARKS

Claims 1-30 are pending in this application. Claims 10-11 have been amended in several particulars for purposes of clarity and brevity while Claims 21-30 have been newly added in accordance with current Office policy, to further and alternatively define Applicant's disclosed invention and to assist the Examiner to expedite compact prosecution of the instant application. A fee of $264.00 is incurred by the addition of claims 21-30.

In view of the foregoing amendments, arguments and remarks, all claims are deemed in condition for examination. Should any questions remain unresolved, the Examiner is requested to telephone Applicants' attorney at the Washington DC area office at (703) 312-6600.

Please charge any shortage in the fees due in connection with the filing of this paper, to Deposit Account No. 01-2135, and please credit any excess fees to such deposit account.

Attached hereto is a marked-up version of the changes made to the specification and claims by the current amendment. The attached page is captioned "**Version with markings to show changes made.**"

Respectfully submitted,

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VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE SPECIFICATION:

Please amend the specification as follows:

Paragraph beginning at page 5, line 5, has been amended as follows:

Accordingly, various embodiments of the present invention are directed to a network architecture for wireless applications such as Wireless Intranet Office (WIO) [~~applications~~] including a local radio network such as a wireless local area network (WLAN) which comprises a Wireless Mobile Center (WMC) arranged to serve as a WLAN access point; a cellular network such as a GSM network which comprises a Mobile Station (MS) in a form of a dual-mode cellular phone to access both WLAN and GSM radio technologies, a Base Station (BS) arranged to convert a radio signal from the Mobile Station (MS) for communication, a Mobile Switching Center (MSC) arranged to establish call connection; and a Handover Module implemented in either the Mobile Station (MS) or the Wireless Mobile Center (WMC) for providing seamless mobility between the GSM network and the wireless LAN, when the Mobile Station (MS) roams between the GSM network and the wireless LAN.

Paragraph beginning at page 10, line 6, has been amended as follows:

Attention now is directed to the drawings and particularly to FIG. 1, an example seamless network mobility architecture for providing seamless mobility between a GSM network and a local radio network such as a wireless LAN according to an embodiment of the present invention is illustrated. Such a network system architecture may be utilized for

wireless applications such as ~~[is intended for]~~ Wireless Intranet Office (WIO) applications and may, therefore, be broadly considered as [a] an example WIO network. As shown in FIG. 1, the network system architecture is comprised of a GSM network 100 and a local radio network such as a wireless LAN (WLAN) 200 that are managed by a network management system 300. In addition, a Mobile Station (MS) 150 in a form of a Dual-Mode (or multi-mode) Mobile is also utilized to operate in two or more different radio technologies, for example, GSM technology and other hotspot radio technology such as a wireless LAN. Such a Mobile Station (MS) 150 serves as the user's interface with the GSM network 100 and the wireless LAN 200, and includes a removable Subscriber Identity Module (SIM) card or chip (not shown) which contains an authentication algorithm for confirming the identity of the user (customer) and information necessary to allow the user to roam in different coverage areas of different technologies, including the GSM network 100 and the wireless LAN 200. More importantly, the Mobile Station (MS) 150 may also contain a novel handover algorithm (handover module) according to an embodiment of the present invention for call handover (sometimes known as "handoff") and for providing seamless mobility between the GSM network 100 and the wireless LAN 200. Handover is a process which allows a conversation (or a call setup or message transmission) to continue even when the Mobile Station (MS) 150 moves from the radio coverage area of one cell (GSM cell or WLAN cell) to another (WLAN or GSM cell) in the midst of the communication.

Paragraph beginning at page 17, line 10, has been amended as follows:

A sequence of seamless WLAN GSM mobility of the example WIO network from a GSM network 100 to a wireless LAN 200 during an IDLE mode may be summarized as follows:

Paragraph beginning at page 19, line 3, has been amended as follows:

A sequence of seamless WLAN GSM mobility of the example WIO network from a wireless LAN 200 to a GSM network 100 during an IDLE mode may be summarized as follows:

Paragraph beginning at page 23, line 3, has been amended as follows:

A sequence of seamless WLAN GSM mobility of the example WIO network from a GSM 100 to a wireless LAN 200 during an ACTIVE mode may be summarized as follows:

Paragraph beginning at page 25, line 16, has been amended as follows:

A sequence of seamless WLAN GSM mobility of the example WIO network from a wireless LAN 200 to a GSM 100 during an ACTIVE mode may be summarized as follows:

Paragraph beginning at page 26, line 18, has been amended as follows:

As described from the foregoing, the example WIO network according to different embodiments of the present invention provides seamless mobility between a GSM network and another local radio network such as a wireless LAN, particularly when such a wireless LAN is used in hotspot areas or an area where higher bit rate or high quality of service (QoS) is desirable without having different terminals, devices and numbers.

IN THE CLAIMS:

Please **amend** claims 10-11 and **add** new claims 21-30, as follows:

10. (Amended) A network architecture, comprising:

a local radio network comprising a Wireless Mobile Center (WMC) arranged to serve as a WLAN access point;

a [~~GSM~~] cellular network comprising a Mobile Station (MS) [~~in a form of a dual-mode cellular phone~~] operable in both said local radio network and said [~~GSM~~] cellular network [~~, a Base Station (BS) arranged to convert a radio signal from the Mobile Station (MS) for communication, a Mobile Switching Center (MSC) arranged to establish call connection~~]; and

a Handover Module implemented [~~in~~] at either the Mobile Station (MS) or the Wireless Mobile Center (WMC) [~~for providing~~] to provide seamless mobility between said local radio network and said [~~GSM~~] cellular network, when the Mobile Station (MS) roams between said local radio network and said [~~GSM~~] cellular network.

11. (Amended) The network architecture as claimed in claim 10, wherein:

said local radio network corresponds to a wireless local area network (LAN) that is located in hotspot areas or an area where a higher bit rate or high quality of service (QoS) is desired, and uses a radio technology that is different from said [~~GSM~~] cellular network; and

said cellular network corresponds to a Global System for Mobile Communication (GSM) network comprising the Mobile Station (MS) in a form of a dual-mode cellular phone operable in both said wireless LAN and said GSM network; a Base Station (BS) arranged to convert a radio signal from the Mobile Station (MS) for communication; and a Mobile Switching Center (MSC) arranged to establish call connection.

--**21.** A network architecture, comprising:

a first wireless network comprising an entity arranged to serve as an access point;

a second wireless network comprising a Mobile Station (MS) to access the first wireless network and the second wireless network; and

a Handover Module implemented at one of the first wireless network and the second wireless network to provide seamless mobility between the second wireless network and the first wireless network, when the Mobile Station (MS) roams between the second wireless network and the first wireless network.

22. The network architecture as claimed in claim 21, wherein:

said first wireless network corresponds to a wireless local area network (LAN) comprising said entity as a Wireless Mobile Center (WMC) to serve as an access point; and

said second wireless network corresponds to a Global System for Mobile communication (GSM) network comprising the Mobile Station (MS) in a form of a dual-mode cellular phone to access both wireless LAN and GMS radio technologies, a Base Station (BS) arranged to convert a radio signal from the Mobile Station (MS) for communication, a Mobile Switching Center (MSC) arranged to establish call connection.

23. The network architecture as claimed in claim 22, wherein, during an IDLE mode when the Mobile Station (MS) roams from said GSM network to said wireless LAN, the Mobile Station (MS) selects a WLAN radio and attempts a location update via said wireless LAN, and a new location of the Mobile Station (MS) is updated at the Mobile Switching Center (MSC).

24. The network architecture as claimed in claim 22, wherein, during an ACTIVE handover mode when the Mobile Station (MS) initiates a handover from said GSM network to said wireless LAN, the Mobile Station (MS) measures GSM neighbor cells and reports a WLAN cell as an ordinary GSM cell, enables transmission of a handover request to the Mobile Switching Center (MSC) of said GSM network, until the Mobile Station (MS) is handed over to said wireless LAN.

25. The network architecture as claimed in claim 22, wherein, during an IDLE mode when the Mobile Station (MS) roams from said wireless LAN to said GSM network, the Wireless Mobile Center (WMC) informs GSM neighbor cells, and the Mobile Station (MS) selects a GSM radio and attempts a location update via said GSM network, and a new location of the Mobile Station (MS) is updated at the Mobile Switching Center (MSC).

26. The network architecture as claimed in claim 22, wherein, during an ACTIVE handover mode when the Mobile Station (MS) initiates a handover from said wireless LAN to said GSM network, the Mobile Station (MS) measures GSM neighbor cells, enables transmission of a handover request to the Mobile Switching Center (MSC), via the Wireless Mobile Center (WMC) of said wireless LAN, until the Mobile Station (MS) is handed over to said GSM network.

27. The network architecture as claimed in claim 22, wherein, during an IDLE mode when the Mobile Station (MS) roams from said GSM network to said wireless LAN, the Mobile Station (MS) first camps in said GSM network, measures GSM neighbor cells for a WLAN cell, and when a WLAN transmission level is acceptable, attempts a location update,

via said wireless LAN, and when the location update is accepted, camps in said wireless LAN and remains ready to make a call.

28. The network architecture as claimed in claim 22, wherein, during an ACTIVE handover mode when the Mobile Station (MS) initiates a handover from said GSM network to said wireless LAN, said Mobile Station (MS) measures GSM neighbor cells, reports measurement results, determines if a WLAN transmission level exceeds a limit and, if said WLAN transmission level exceeds a limit, lists a WLAN cell first in said measurement results, thereby allowing said Base Station (BS) to receive said measurement results, and indicate a handover to a WLAN cell before said Mobile Station (MS) is handed over to said wireless LAN.

29. The network architecture as claimed in claim 22, wherein, during an IDLE mode when the Mobile Station (MS) roams from said wireless LAN to said GSM network, said Wireless Mobile Center (WMC) informs GSM neighbor cells; and said Mobile Station (MS) first camps in said wireless LAN, measures a WLAN cell and informed GSM neighbor cells, determines if a WLAN transmission level drops below a limit and, if the WLAN transmission level drops below the limit, camps in said GSM network based on predetermined variables, makes a location update via said GSM network.

30. The network architecture as claimed in claim 22, wherein, during an ACTIVE handover mode when the Mobile Station (MS) initiates a handover from said wireless LAN to said GSM network:

said Mobile Station (MS) measures a WLAN cell and informed GSM neighbor cells, and sends an indication if a WLAN transmission level drops below limit;

said Wireless Mobile Center (WMC) calculates the best GSM target cell, and starts a handover;

said Base Station (BS) sends GSM neighbor cells to said Mobile Station (MS) in response to a handover attempt; and

said Mobile Station (MS) is handed over to said GSM network.--